

DYNAMIC DATA ACCESS PATTERN DETECTION IN A BLOCK DATA STORAGE DEVICE

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Abstract of the Disclosure

Method and apparatus for transferring data between a host device and a data storage device having a first memory space (such as a buffer) and a second memory space (such as magnetic discs). Data are stored on the discs in host-addressable data sectors. The data storage device is configured to operate in a local mode of operation and a nonlocal mode of operation. During the local mode, nonrequested user data are retrieved from the discs and placed into the buffer in anticipation of a future request for the nonrequested user data. During nonlocal mode, such nonrequested user data are not retrieved. An interface circuit monitors host data access patterns and dynamically switches between the nonlocal and local modes in relation to proximity of a data sector address of each most recently received read command to data sector addresses associated with previously received read commands.